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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,265	04/13/2004	Tomonori Tsukagoshi	09792909-5865	5347

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EXAMINER
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CHIEN, LUCY P

ART UNIT	PAPER NUMBER
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2871

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09/16/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/823,265	<b>Applicant(s)</b> TSUKAGOSHI ET AL.	
	<b>Examiner</b> LUCY P. CHIEN	<b>Art Unit</b> 2871	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 June 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 6-9, 11, 12, 24-27, 29-41 and 43-46 is/are pending in the application.
- 4a) Of the above claim(s) 6-9, 11, 12, 24-26, 33-37, 44 and 45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27, 29-32, 38-41, 43 and 46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments with respect to claim 27,29-32,38-41,43,46 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 27,40,41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka Takaaki (JP 2002-131750) in view of Ito et al (US 5583679).

#### Regarding Claim 27,

Tanaka Takaaki discloses (Drawing 2 and Drawing 6) a liquid crystal display device having a microlens array (142) provided on a luminous flux incidence side (where light is entering from 120 also shown by an arrow in Drawing 2) the liquid crystal display panel (137) comprising two optical compensation layer (shown in Drawing 2 (85,86), each being made of an inorganic material (Sapphire [0117]) , formed in a flat plate-like shape (from the cross sectional view shown in Figure 2 the compensation layers (57) seem to be flat and plate like shaped). And having an optical axis inclined with respect to a liquid crystal panel surface (Drawing 2) the first optical compensation layer being positioned on a luminous flux emission side of the liquid crystal panel and

the second optical compensation layers being positioned on a luminous flux incidence side of the liquid crystal panel (87) (see drawing below)

Tanaka Takaaki does not disclose wherein the liquid crystal is in between the first and second optical compensation layer. wherein the inorganic material first and second optical compensation layers is cut out so that the direction of inclination of the optical axis of each of the first and second optical compensation layer is substantially equal to the first rubbing direction or to the second rubbing direction of the liquid crystal panel. The liquid crystal panel having a first rubbing direction on a luminous flux emission side and a different second rubbing direction on a luminous flux incidence side.

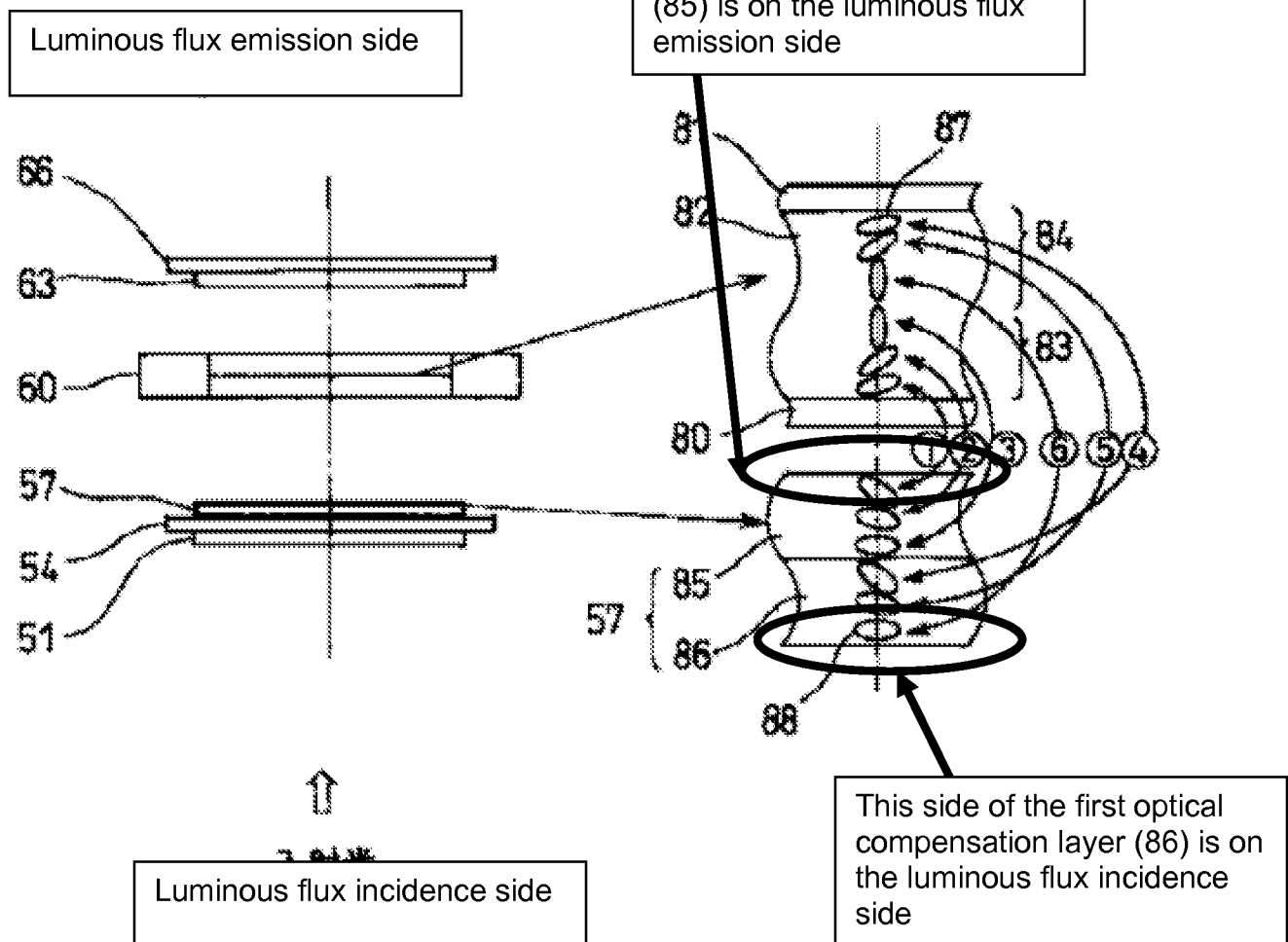
Ito et al discloses (Fig. 8 and Fig. 9) the liquid crystal layer (81) is in between the first and second compensation layer (82a,82b) wherein the inorganic material first and second optical compensation layers (82a,82b) is cut out so that the direction of inclination of the optical axis of each of the first and second optical compensation layer is substantially equal to the first rubbing direction (81ra) or to the second rubbing (81rb) direction of the liquid crystal panel. The liquid crystal panel having a first rubbing direction (81ra) on a luminous flux emission side and a different second rubbing direction on a luminous flux incidence side (81rb).

Therefore, it would have been obvious to one of ordinary skill in the art to modify Tanaka Takaaki's optical compensation layers to include Ito et al's liquid crystal in between the first and second compensation layer to control the overall retardation of the LCD device at a constant and the specifics of the compensation and liquid crystal

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rubbing directions motivated by the desire to enlarge the viewing angle (column 2, rows 42-50).

The remaining limitations are a product by process limitation [See MPEP 2113], which does not distinguish the structure of the claimed device from the structure of the reference so Claim 27,40,42 are rejected as well. Ito et al discloses the compensation layer having a direction of inclination of the optical axis equal to the rubbing direction of the liquid crystal panel therefore the device claim therefore meets this claims requirement wherein the inorganic material *is cut out* so that the direction of inclination of the optical axis is substantially equal to the rubbing direction of the liquid crystal panel.



Regarding Claim 40,

In addition to Tanaka Takaaki and Ito et al as disclosed above, Tanaka Takaaki discloses (Drawing 2 and Drawing 6) wherein the optical compensation layer has an outer size equal to the effective display area of the liquid crystal panel.

Regarding Claim 41

In addition to Tanaka Takaaki and Ito et al as disclosed above, Tanaka Takaaki discloses (Drawing 2 and Drawing 6) a light source (120) a liquid crystal display device having a microlens array (142) provided on a luminous flux incidence side as a spatial light modulator. An illuminating optical system such as prisms (126) for guiding a

luminous flux emitted from a light source to the liquid crystal display device and thus illuminating the liquid crystal display device, and an image-forming lens (140)([0114]) for forming an image of the liquid crystal display device.

**Claim 38,39,46** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka Takaaki (JP 2002-131750) and of Ito et al (US 5583679) in view of Hanrahan et al (US 6262788)

Regarding Claim 38,39,46

Tanaka Takaaki and Ito et al disclose everything as disclosed above.

Tanaka Takaaki and Ito et al do not disclose the angle of inclination of at least one of the first and second optical compensation layers is approximately 75 degrees to 85 degrees.

Hanrahan discloses the compensation layers (retarders) have an inclination (tilting) angle of 0 degrees to 90 degrees which are overlapping ranges of 75 degrees to 85 degrees.

Thus, It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the angle of inclination of at least one of the first and second optical compensation layer is approximately 75°-85° with respect to the liquid crystal panel surface, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

**Claim 29,31**, rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka Takaaki (JP 2002-131750) and of Ito et al (US 5583679) in view of Suzuki et al (US 20020018162)

Regarding Claim 29,31,

Tanaka Takaaki and Ito et al disclose everything as disclosed above.

Tanaka Takaaki and Ito et al do not disclose the first optical compensation layer is uniaxial crystal.

Suzuki et al further discloses the inorganic material forming the optical compensation layer is uniaxial crystal (Page 20, [0227]) to improve the higher contrast image of the display.

It would have been obvious to one of ordinary skilled in the art to modify Tanaka Takaaki and Ito et al to include Suzuki's uniaxial crystal motivated by the desire to provide a durable material to make a compensator to improve the higher contrast image of the display (Page 20, [0227]).

**Claim 30,32,43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka Takaaki (JP 2002-131750) and of Ito et al (US 5583679) in view of Suzuki et al (US 20020018162) in view of Nishida et al (US 6052168).

Regarding Claim 30,32,43

Tanaka Takaaki, Ito et al, Suzuki et al do not disclose the refractive index range.

Nishida et al discloses (Column 5, Row 49-56) Wherein  $\Delta n \cdot d$ , which is the product of refractive index anisotropy  $\Delta$  and thickness  $d$  of the inorganic material forming the optical compensation layer, is 165 nm which is less than 640 nm.



It would have been obvious to one of ordinary skill in the art, at the time of the invention to modify Tanaka Takaaki, Ito et al and Suzuki et al to include Nishida et al's refractive index range motivated by the desire to incline the liquid crystal, which the refractive-index anisotropy generates. Therefore, the retardation to the transmitted light of the incidence-side polarizing plate occurs in the LC layer by this means the permittivity is increased. Thus, enhancing the view angle characteristic.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUCY P. CHIEN whose telephone number is (571)272-8579. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lucy P Chien  
Examiner  
Art Unit 2871

/David Nelms/  
Supervisory Patent Examiner, Art Unit 2871